Application No. 10/694,383 Reply to Office Action of September 22, 2006 Page 6 of 8

Amendments to the Drawings:

Figures 1-26 have been amended to include the relevant sequence identifiers were appropriate. No new matter has been added.

Attachment: Replacement sheet

Annotated Marked-up Drawings

REMARKS

Amendments to the Specification

The specification has been amended to comply with the requirements of 37 C.F.R. 1.821-1.825. Specifically, sequence identifiers have been added to the Figures and to the specification at pages 7-9 and 24 to accompany the sequence disclosures that are encompassed by the definitions for nucleotide sequences as set forth in 37 C.F.R. 1.821(a)(1). Although these sequences were not identified by a SEQ ID NO in the specification, they were part of the Sequence Listing filed with the United States Patent and Trademark Office on July 19, 2004. Therefore, a substitute computer readable form (CRF) copy and a substitute paper copy of the "Sequence Listing" are not required. No new matter has been added by this amendment.

Rejection For Failure To Comply With 37 C.F.R. §§ 1.821-1.825

The application has been rejected for failing to comply with the requirements of 37 C.F.R. § 1.821. Specifically, the Office Action states that the application references sequences by the identifier Oligo(s) rather than the proper identifier SEQ ID NO (citing page 30, line 5 as an example).

Applicants respectfully disagree. Nucleotide and/or amino acid sequences as used in §§ 1.821 through 1.825 are interpreted to mean an unbranched sequence of four or more amino acids or an unbranched sequence of ten or more nucleotides. 37 C.F.R. § 1.821(a)(1) states that nucleotides are intended to embrace only those nucleotides that can be represented using the symbols set forth in WIPO Standard ST.25 (1998), and (a)(2) states that Amino acids are those L-amino acids commonly found in naturally occurring proteins and are listed in WIPO Standard ST.25 (1998). Since the disclosure in the application, for example, at pages 29 and 30, do not meet these definitions, the application complies with the Sequence Listing requirements. Applicants are allowed to be their own lexicographers and can give whatever name they choose to the disclosed oligonucleotides. Sequence identifiers are only required where the sequence is disclosed. Reconsideration and withdrawal of the rejection are respectfully requested.

Application No. 10/694,383 Reply to Office Action of September 22, 2006 Page 8 of 8

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

Dated: OctoBer 23, 2006

Keown & Associates 500 West Cummings Park **Suite 1200**

Woburn, MA 01801

Telephone: 781/938-1805 Facsimile:

781/938-4777

Joseph C. Zucchero

Registration No. 55,762

FIG. 1A

23

SEQ ID NO.: 23

22

SEQ ID NO.: 22

SEQ ID NO.: 20

SEQ ID NO.: 21

SEQ ID NO.: 19

1',2'-Dideoxyribose

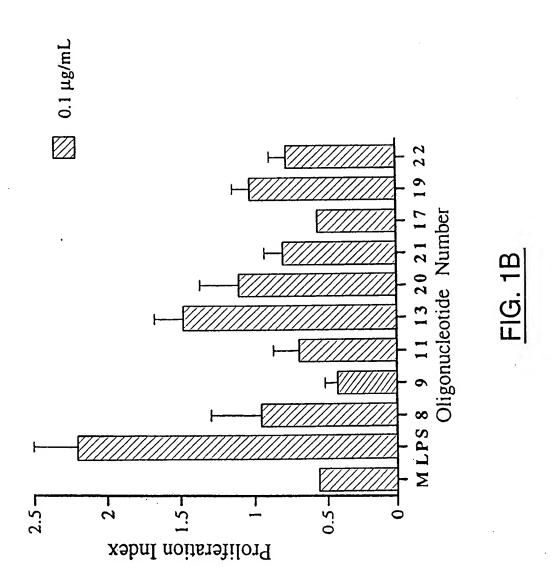


OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

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Sequence & Modification

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SEQ ID NO.: 8	SEQ ID NO.: 9	SEQ ID NO.: 10	SEQ ID NO.: 11	SEQ ID NO.: 12	SEQ ID NO.: 13	SEQ ID NO.: 14	SEQ ID NO.: 15	SEQ ID NO.: 16	SEQ ID NO.: 17	SEQ ID NO.: 18
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1',2'-Dideoxyribose

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

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Sequence & Modification

8	6	10	7	12	13	14	15	16	17	18	19	20
SEQ ID NO.: 8	SEQ ID NO.: 9	SEQ ID NO.: 10	SEQ ID NO.: 11	SEQ ID NO.: 12	SEQ ID NO.: 13	SEQ ID NO.: 14	SEQ ID NO.: 15	SEQ ID NO.: 16	SEQ ID NO.: 17	SEQ ID NO.: 18	SEQ ID NO.: 19	SEQ ID NO.: 20

5'-CCTACTAGCGTTCTCATC-3' (133-1)
5'-CCTACTAGCXTTCTCATC-3' (139-2)
5'-CCTACTAXCGTTCTCATC-3' (133-2)
5'-CCTACTXGCGTTCTCATC-3' (139-3)
5'-CCTACXAGCGTTCTCATC-3' (133-3)
5'-CCTAXTAGCGTTCTCATC-3' (133-4)
5'-CCTXCTAGCGTTCTCATC-3' (133-4)
5'-CCTXCTAGCGTTCTCATC-3' (145-10a)

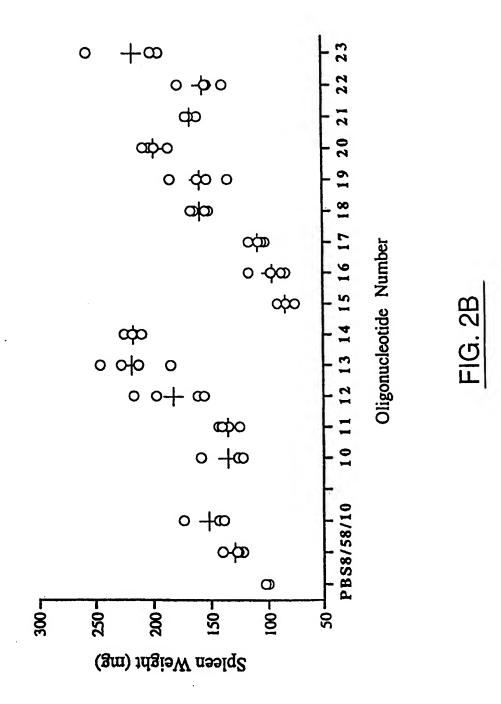
5'-CCTACTAGCGXTCTCATC-3' (133-5)
5'-CCTACTAGCGTXCTCATC-3' (139-7)
5'-CCTACTAGCGTTXTCATC-3' (133-6)
5'-CCTACTAGCGTTCXCATC-3' (139-8)
5'-CCTXXTAGCGTTCTCATC-3' (139-6)
5'-XXTACTAGCGTTCTCATC-3' (139-6)
5'-CCTACTAGCGTTCXXATC-3' (139-6)
5'-CCTXCTXGCGTTCTCATC-3' (145-10b)

FIG. 2A

SEQ ID NO.: 22

SEQ ID NO.: 21

SEQ ID NO.: 23



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

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5'-CTATCTGACGTTCTCTGT-3' (131-1)

Sequence & Modification

5'-CTATCTGAXGTTCTCTGT-3' (131-13)

SEQ ID NO.: 105

SEQ ID NO.: 1

SEQ ID NO.: 106

SEQ ID NO.: 108 SEQ ID NO.: 109

SEQ ID NO.: 107

5'-CTATCXGACGTTCTCTGT-3' (131-3) 5'-CTATCTGXCGTTCTCTGT-3' (131-2)

5'-CTAXCTGACGTTCTCTGT-3' (131-4)

5'-CTATCTGACGXTCTCTGT-3' (131-5) 5'-CTATCTGACGTTXTCTGT-3' (131-6)

SEQ ID NO.: 110

1',2'-Dideoxyribose

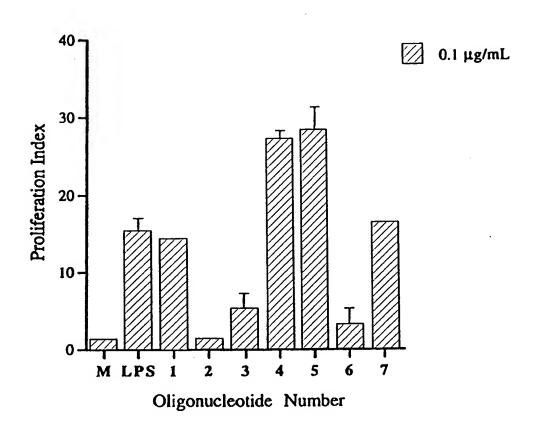


FIG. 3B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

		0- i	今 ・) = X	O-0	0-4-0 0-6-0	~) , ,
Sequence & Modification	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)	5'-CTATCTGAXGTTCTCTGT-3' (131-13)	5'-CTATCTGXCGTTCTCTGT-3' (131-2)	5'-CTATCXGACGTTCTCTGT-3' (131-3)	5'-CTAXCTGACGTTCTCTGT-3' (131-4)	5'-CTATCTGACGXTCTCTGT-3' (131-5)	5'-CTATCTGACGTTXTCTGT-3' (131-6)
Oligo No.	SEQ ID NO:: 1 1	SEQ ID NO.: 105 2	SEQ ID NO.: 106 3	SEQ ID NO.: 107 4	SEQ ID NO.: 108 5	SEQ ID NO.: 109 6	SEQ ID NO.: 110 7

1',2'-Dideoxyribose

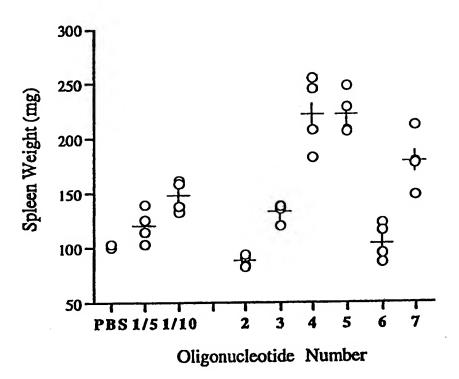
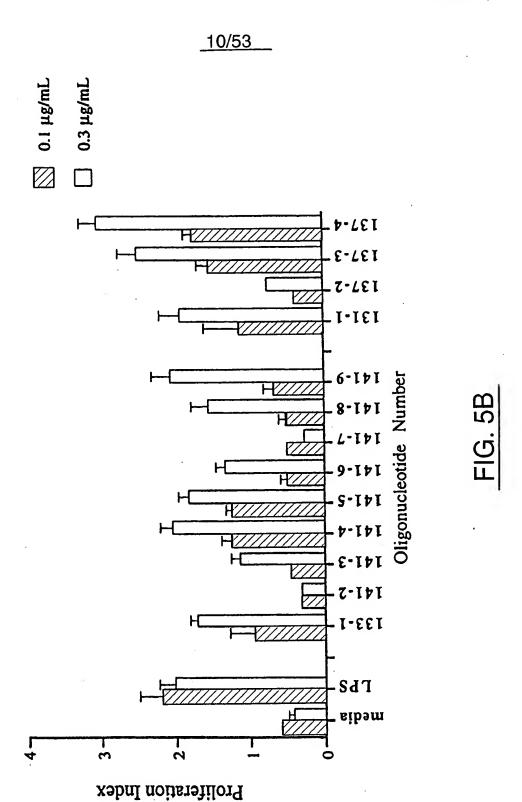


FIG. 4B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

0	Oligo No.	Sequence & Modification	
SEQ ID NO.: 8	133-1	5'-CCTACTAGCGTTCTCATC-3'	
SEQ ID NO.: 24	141-2	5'-CCTACTAGCXTTCTCATC-3'	
SEQ ID NO.: 25	141-3	5'-CCTACTXGCGTTCTCATC-3'	٥٫
SEQ ID NO.: 26	141-4	5'-CCTAXTAGCGTTCTCATC-3'	
SEQ ID NO.: 27	141-5	5'-CCTXXTAGCGTTCTCATC-3'	_
SEQ ID NO.: 28	141-6	5-XXTACTAGCGTTCTCATC-3'	/ II
SEQ ID NO.: 29	141-7	5'-CCTACTAGCGTXCTCATC-3'	, ,0·
SEQ ID NO.: 30	141-8	5'-CCTACTAGCGTTCXCATC-3'	0=P-0
SEQ ID NO.: 31	141-9	5'-CCTACTAGCGTTCXXATC-3')~ ⊙S
		C3-Linker	inker
SEQ ID NO.: 1	131-1	5'-CTATCTGACGTTCTCTGT-3'	
SEQ ID NO.: 32	137-2	5'-CTATCTGXCGTTCTCTGT-3'	
SEQ ID NO.: 33	137-3	5'-CTATCXGACGTTCTCTGT-3'	
SEQ ID NO.: 34	137-4	5'-CTAXCTGACGTTCTCTGT-3'	

FIG. 5A

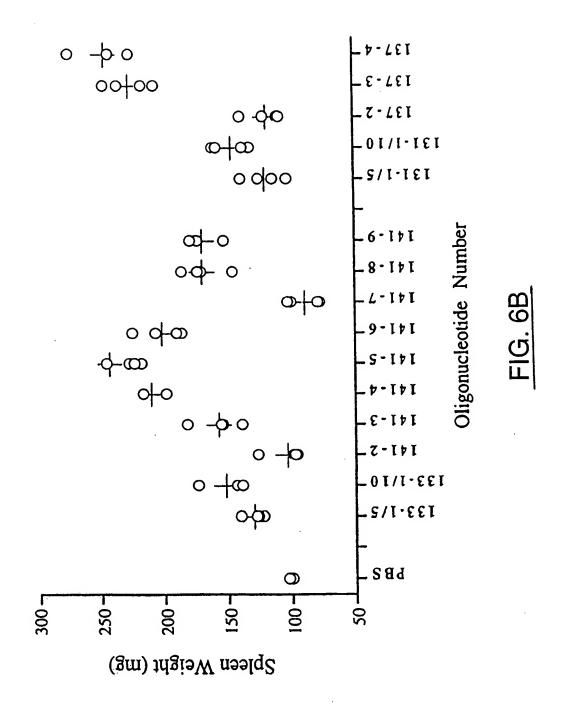


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Sequence & Modification	5'-CCTACTAGCGTTCTCATC-3'	5'-CCTACTAGCXTTCTCATC-3'	5'-CCTACTXGCGTTCTCATC-3'	5'-CCTAXTAGCGTTCTCATC-3'	5'-CCTXXTAGCGTTCTCATC-3'	5'-XXTACTAGCGTTCTCATC-3'	5'-CCTACTAGCGTXCTCATC-3'	5'-CCTACTAGCGTTCXCATC-3'	5'-CCTACTAGCGTTCXXATC-3'	5'-CTATCTGACGTTCTCTGT-3'	5'-CTATCTGXCGTTCTCTGT-3'	5'-CTATCXGACGTTCTCTGT-3'	5'-CTAXCTGACGTTCTCTGT-3'
Oligo No.	SEQ ID NO.: 8 133-1	SEQ ID NO.: 24 141-2	SEQ ID NO.: 25 141-3		SEQ ID NO.: 27 141-5	SEQ ID NO.: 28 141-6	SEQ ID NO.: 29 141-7	SEO ID NO.: 30 141-8	SEQ ID NO.: 31 141-9	0EO ID NO : 4 134-1	SEO ID NO.: 32 137-2		SEQ ID NO.: 34 137-4

FIG. 6A

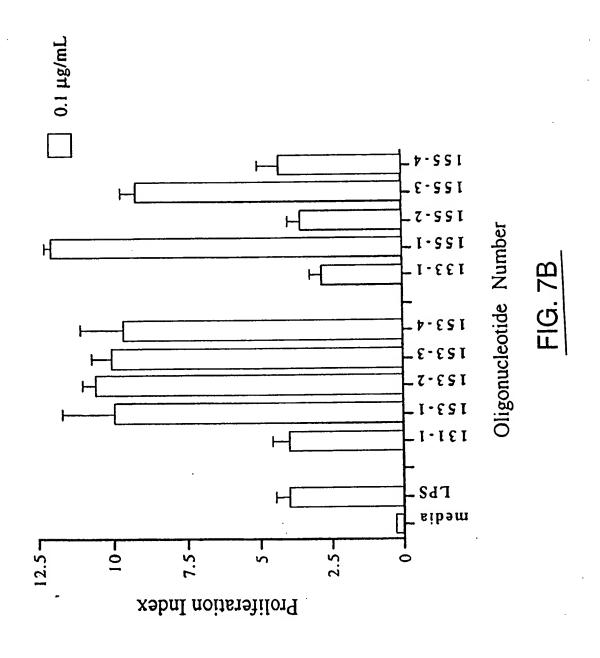
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0	Oligo No.	Sequence & Modification
SEQ ID NO.: 1	-	5'-CTATCTGA <u>CG</u> TTCTCTGT-3' (131-1)
SEQ ID NO.: 35	7	5'-CTAXCTGACGTTCTCTGT-3' (153-1)
SEQ ID NO.: 36	ო	5'-CTATCTGACGTTCXCTGT-3' (153-2)
SEQ ID NO.: 37	4	5'-CTAYCTGACGTTCTCTGT-3' (153-3)
SEQ ID NO.: 38	2	5'-CTATCTGACGTTCYCTGT-3' (153-4)
SEQ ID NO.: 8	9	5'-CCTACTAGCGTTCTCATC-3' (133-1)
SEQ ID NO.: 39	7	5'-CCTXCTAGCGTTCTCATC-3' (155-1)
SEQ ID NO.: 40	æ	5'-CCTACTAGCGTTCXCATC-3' (155-2)
SEQ ID NO.: 41	o	5'-CCTYCTAGCGTTCTCATC-3' (155-3)
SEQ ID NO.: 42	10	5'-CCTACTAGCGTTCYCATC-3' (155-4)

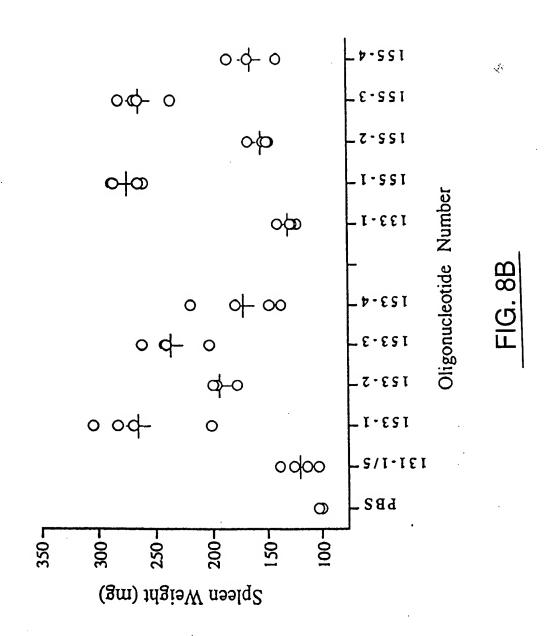
$$X = Y_{0} + Y_{0} + Y_{0}$$
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$$Y = Y_{0} + Y_{0} + Y_{0} + Y_{0}$$
Spacer18
$$Y = Y_{0} + Y_{0} +$$



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Oligo No. Sequence & Modification	NO.: 1 1 5'-CTATCTGACGTTCTCTGT-3' (131-1)	NO.: 35 2 5'-CTAXCTGACGTTCTCTGT-3' (153-1)	3 S'-CTATCTGACGTTCXCTGT-3' (153-2)	NO.: 37 4 5'-CTAYCTGACGTTCTCTGT-3' (153-3)	NO.: 38 5 5'-CTATCTGACGTTCYCTGT-3' (153-4)	NO.: 8 6 5'-CCTACTAGCGTTCTCATC-3' (133-1)	NO.: 39 7 S'-CCTXCTAGCGTTCTCATC-3' (155-1)	NO.: 40 8 5'-CCTACTAGCGTTCXCATC-3' (155-2)	NO.: 41 9 5'-CCTYCTAGCGTTCTCATC-3' (155-3)	3 NO.: 42 10 5'-CCTACTAGCGTTCYCATC-3' (155-4)
	SEQ ID NO.: 1	SEQ ID NO.: 35	SEQ ID NO.: 36	SEQ ID NO.: 37	SEQ ID NO.: 38	SEQ ID NO.: 8	SEQ ID NO.: 39	SEQ ID NO.: 40	SEQ ID NO.: 41	SEQ ID NO.: 42

$$X = \frac{1}{2} \times \frac{1}{2} \times$$



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

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Sequence & Modification

SEQ ID NO.: 1

SEQ ID NO.: 43

SEQ ID NO.: 44 SEQ ID NO.: 45

SEQ ID NO.: 46 5

5'-CTATCTGACGTTCTCTGT-3' (131-1) 5'-CTATCTGXCGTTCTCTGT-3' (157-1)

5-CTATCTXACGTTCTCTGT-3' (157-2)

5'-CTAXCTGACGTTCTCTGT-3' (157-3) 5'-CTATCTGACGTXCTCTGT-3' (157-4)

5-CIAICIGACGIACICIGI-3 (137-4) 5-CTATCTGACGTTCXCTGT-3' (157-5)

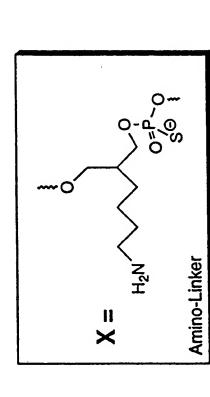
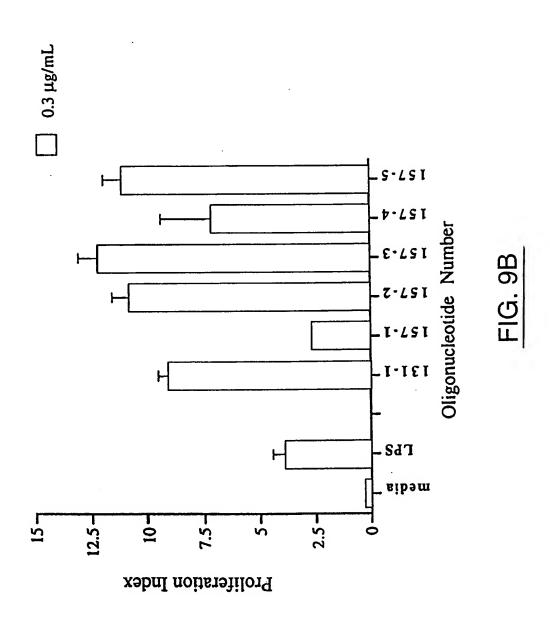


FIG. 9A



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.

Sequence & Modification

5'-CTATCTGACGTTCTCTGT-3' (131-1)

5'-CTATCTGXCGTTCTCTGT-3' (157-1)

SEQ ID NO.: 1 SEQ ID NO.: 43

SEQ ID NO.: 45

SEQ ID NO.: 45

SEQ ID NO.: 46 5 SEQ ID NO.: 47 6

5'-CTATCTXACGTTCTCTGT-3' (157-2)
5'-CTAXCTGACGTTCTCTGT-3' (157-3)
5'-CTATCTGACGTXCTCTGT-3' (157-4)
5'-CTATCTGACGTTCXCTGT-3' (157-5)

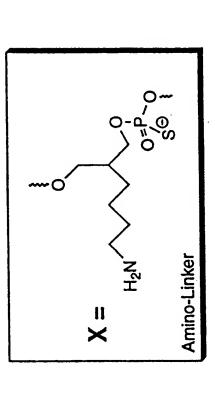


FIG. 10A

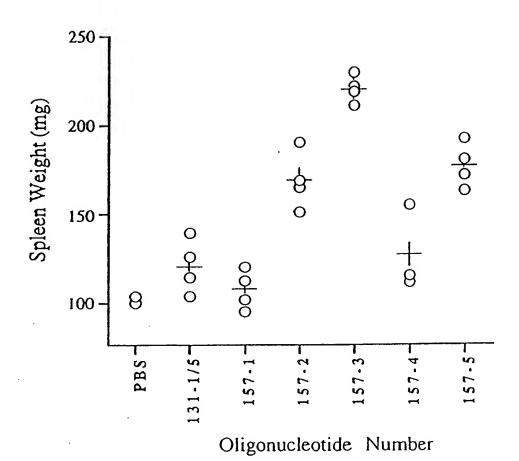


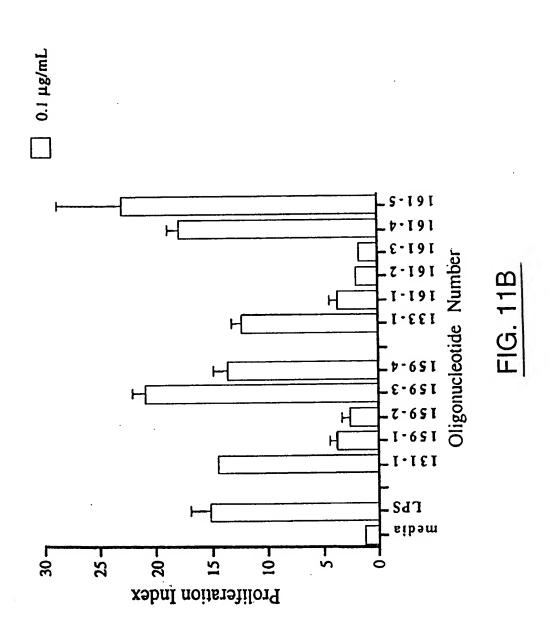
FIG. 10B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Sequence & Modification	
SEQ ID NO.: 1 131-1	5'-CTATCTGACGTTCTCTGT-3'	
SEQ ID NO.: 48 159-1	5'-CTATCTGACXTTCTCTGT-3'	0-
SEQ ID NO.: 49 159-2	5'-CTATCTGAXGTTCTCTGT-3'	X = 5' 0 B
SEQ ID NO.: 50 159-3	5'-CTATXTGACGTTCTCTGT-3'	
SEQ ID NO.: 51 159-4	5'-CTATCTGACGTTCTXTGT-3'	0-P=0
SEQ ID NO.: 8 133-1	5'-CCTACTAGCGTTCTCATC-3'	S (5) O B
SEQ ID NO.: 52 161-1	5'-CCTACTAGCXTTCTCATC-3'	
SEQ ID NO.: 53 161-2	5'-CCTACTAGXGTTCTCATC-3'	3'-Deoxynucleoside
SEQ ID NO.: 54 161-3	5'-CCTACTAXCGTTCTCATC-3'	
SEQ ID NO.: 55 161-4	5'-CCTAXTAGCGTTCTCATC-3'	
SEQ ID NO.: 56 161-5	5'-CCTACTAGCGTTCTXATC-3'	

21/53

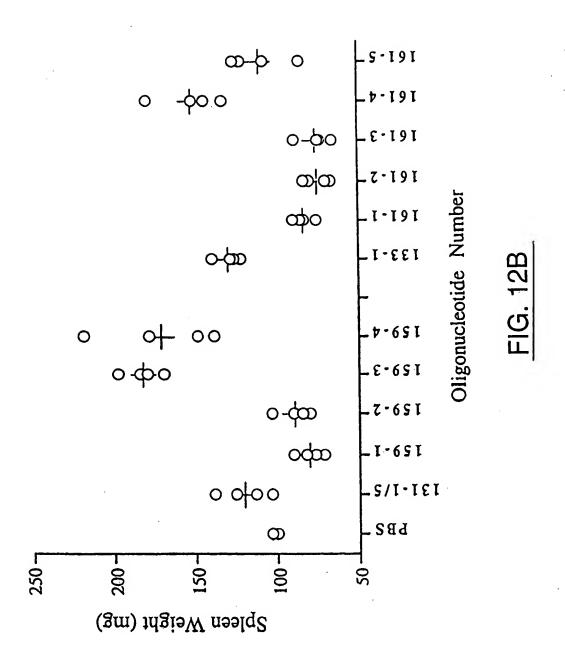
FIG. 11A



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.	Vo.	Sequence & Modification	
SEQ ID NO.: 1 131-1	T	5'-CTATCTGACGTTCTCTGT-3'	
SEQ ID NO.: 48 159-1	Ψ.	5'-CTATCTGACXTTCTCTGT-3'	0-
SEQ ID NO.: 49 159-2	-5	5'-CTATCTGAXGTTCTCTGT-3'	$X = 5' \bigcirc X'$
SEQ ID NO.: 50 159-3	ဇှ	5'-CTATXTGACGTTCTCTGT-3'	2
SEQ ID NO.: 51 159-4	4	5'-CTATCTGACGTTCTXTGT-3'	23/53 0 0 0 0
SEQ ID NO.: 8 133-1	-	5'-CCTACTAGCGTTCTCATC-3'	$\langle 0 \rangle^B$
SEQ ID NO.: 52 161-1	-	5'-CCTACTAGCXTTCTCATC-3'	<u></u>
SEQ ID NO.: 53 161-2	-5	5'-CCTACTAGXGTTCTCATC-3' 3'-De	3'-Deoxynucleoside
SEQ ID NO.: 54 161-3	ကု	5'-CCTACTAXCGTTCTCATC-3'	
SEQ ID NO.: 55 161-4	-4	5'-CCTAXTAGCGTTCTCATC-3'	
SEQ ID NO.: 56 161-5	ب	5'-CCTACTAGCGTTCTXATC-3'	

FIG. 12A



Methyl-phosphonate

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

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5'-CTATCTGACGTXCTCTGT-3'	167-8	SEQ ID NO.: 64 167-8
5'-CTATCTGACGXTCTCTGT-3'	167-7	SEQ ID NO.: 63 167-7
5'-CTXXCTGACGTTCTCTGT-3'	167-6	SEQ ID NO.: 62 167-6
5'-CTAXCTGACGTTCTCTGT-3'	167-5	SEQ ID NO.: 61 167-5
5'-CTATXTGACGTTCTCTGT-3'	167-4	SEQ ID NO.: 60 167-4
5'-CTATCXGACGTTCTCTGT-3'	167-3	SEQ ID NO.: 59 167-3
5'-CTATCTXACGTTCTCTGT-3'	167-2	SEQ ID NO.: 58 167-2
5'-CTATCTGXCGTTCTCTGT-3'	1-291	SEQ ID NO.: 57
5'-CTATCTGACGTTCTCTGT-3'	131-1	SEQ ID NO.: 1 131-1

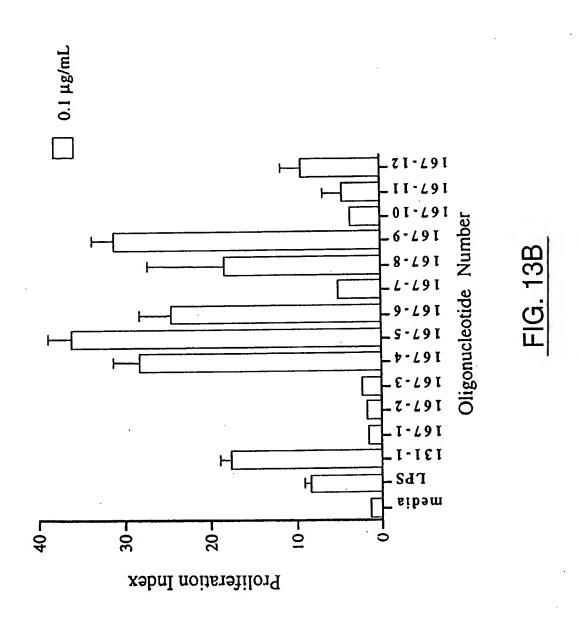
FIG. 13A

SEQ ID NO.: 68 167-12

SEQ ID NO.: 66 167-10

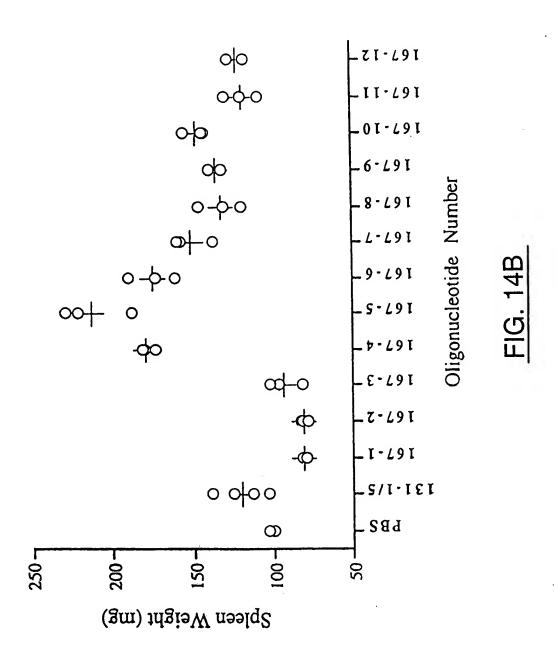
SEQ ID NO.: 67 16711

SEQ ID NO.: 65 167-9



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Olig	Oligo No.	Sequence & Modification
SEO ID NO. 1	131-1	s'-ctatctgacgttctgt-3'
SEQ ID NO.: 57 167-1	1-291	0
SEQ ID NO.: 58 167-2	167-2	$S'-CTATCTXACGTTCTCTGT-3'$ $X = 5' \times 0' \times 0'$
SEQ ID NO.: 59 1	167-3	5'-CTATCXGACGTTCTCTGT-3'
SEQ ID NO.: 60 167-4	167-4	5'-CTATXTGACGTTCTCTGT-3'
SEQ ID NO.: 61	167-5	5'-CTAXCTGACGTTCTCTGT-3'
SEQ ID NO.: 62	167-6	5-CTXXCTGACGTTCTCTGT-3'
SEQ ID NO.: 63	167-7	5'-CTATCTGACGXTCTCTGT-3'
SEQ ID NO.: 64 167-8	167-8	5'-CTATCTGACGTXCTCTGT-3'
SEQ ID NO.: 65 167-9	167-9	5'-CTATCTGACGTTXTCTGT-3'
SEQ ID NO.: 66 167-10	167-10	5'-CTATCTGACGTTCXCTGT-3'
SEQ ID NO.: 67 16711	16711	5'-CTATCTGACGTTCTXTGT-3'
SEQ ID NO.: 68 167-12	167-12	5'-CTATCTGACGTTCTXXGT-3'



5'-TCCATGXCGTTCCTGATGC-3'

5'-TCCATGACGTTCCTGATGC-3'

SEQ ID NO.: 69 113-1

SEQ ID NO.: 70 23-1

SEQ ID NO.: 71 23-3

SEQ ID NO.: 72 29-2

Sequence & Modification

Oligo No.

5'-TYYATGACGGTCCTGATGC-3'

5'-TCCAXGACGTTCCTGATGC-3'

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

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 $R_X = 2$ '-O-Methylribonucleoside Ry = 2'-O-Methoxyethoxyribonucleoside

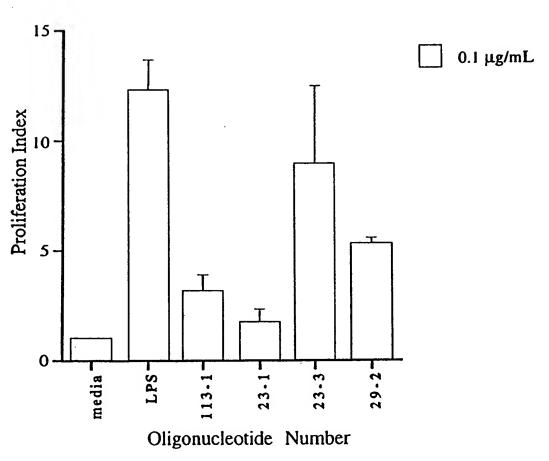


FIG. 15B

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 $R_X = 2$ '-O-Methylribonucleoside Ry = 2'-O-Methoxyethoxyribonucleoside

Sequence & Modification Oligo No.

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

SEQ ID NO.: 69 113-1	113-1	5'-TCCATGACGTTCCTGATGC-3'
SEQ ID NO.: 70 23-1	23-1	5'-TCCATGXCGTTCCTGATGC-3'
SEQ ID NO.: 71 23-3	23-3	5'-TCCAXGACGTTCCTGATGC-3'

SEQ ID NO.: 72 29-2

5'-TYYATGACGGTCCTGATGC-3'

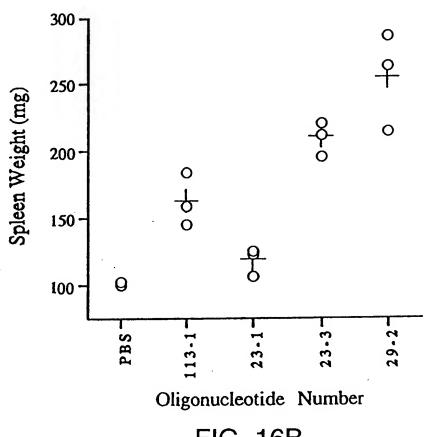


FIG. 16B

DLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES		
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GODEOXYNUCLEOTIDE	OTHIOATES	
GODEOXYNUCLEOTID	PHOSPHOR	
()	GODEOXYNUCLEOTID	

Oligo No.	Vo. Sequence & Modification
SEQ ID NO.: 73 1	5'-GAGAACGCTCGACCTT-3'
SEQ ID NO.: 74 2	5'GAGAACGCTCGACCTT-3'5'GAGAACGCTCGACCTT-3'
SEQ ID NO.: 75 3	3'-TTCCAGCTCGCAAGAG-5'-GAGAACGCTCGACCTT-3'
SEQ ID NO.: 76 4	5'-GAGAACGCTCGACCTT-3' 3'-TTCCAGCTCGCAAGAG-5'
SEQ ID NO.: 77 5	5'-T C T C C C A G C G T G C G C C A T-3'
SEQ ID NO.: 78 6	5-T C C C A G C G T G C G C C A T-3' 5'-T C C C A G C G T G C G C C A T-3'
SEQ ID NO.: 79 7	3'-TACCGCGTGCGACCCT-5' 5'-TCCCAGCGTGCGCCAT-3'
SEQ ID NO.: 80 8	5'-TCCCAGCGTGCGCCAT-3' 3'-TACCGCGTGCGACCCT-5'

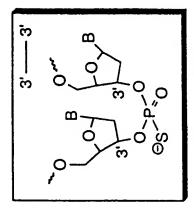
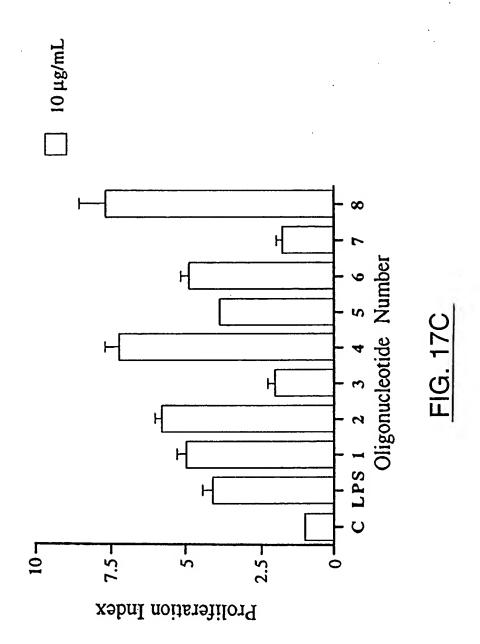


FIG. 17B





OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

1	The state of the s		
0	Oligo No.	Sequence & Modification	
SEQ ID NO.: 1	131-1	5'-CTATCTGACGTTCTCTGT-3'	
SEQ ID NO.: 81	175-1	5'-CTATXTGACGTTCTCTGT-3'	³ ,00-
SEQ ID NO.: 82 175-2	175-2	5'-CTATCTGACGTTCXCTGT-3'	$X = \frac{B}{\sqrt{O}}$
SEQ ID NO.: 83	175-3	5'-CTAXXTGACGTTCTCTGT-3'	
SEQ ID NO.: 84	175-4	5'-CTATCTGACGTTCXXTGT-3'	0=6-0
SEQ ID NO.: 85 175-5	175-5	5'-CTATCTGAXXTTCTCTGT-3'	ς _Θ (5, Ο
SEQ ID NO.: 86 175-6	175-6	5'-CTATCTXACGTTCTCTGT-3'	β -L-Deoxynucleoside 3'
SEQ ID NO.: 87 175-7	175-7	5'-CTATCTGACGTXCTCTGT-3'	j
SEQ ID NO.: 88 175-9	175-9	5'-CTATCTGACGTTCTCTGT-3' (all-β-L-DNA/PS)	NA/PS)

FIG. 18A

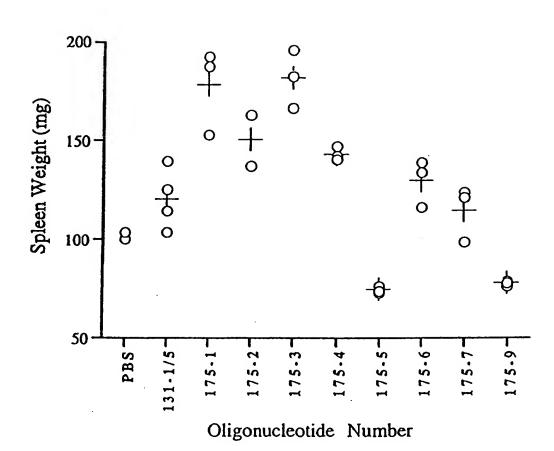


FIG. 18B

2'-O-Propargyl-ribonucleoside

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

Oligo No.

Sequence & Modification

SEQ ID NO.: 1 131-1

SEQ ID NO.: 89 173-1

SEQ ID NO.: 90 173-2

5'-CTATXTGACGTTCTCTGT-3'

5'-CTATCTGACGTTCTCTGT-3'

5'-CTATCTGACGTTCTXTGT-3'

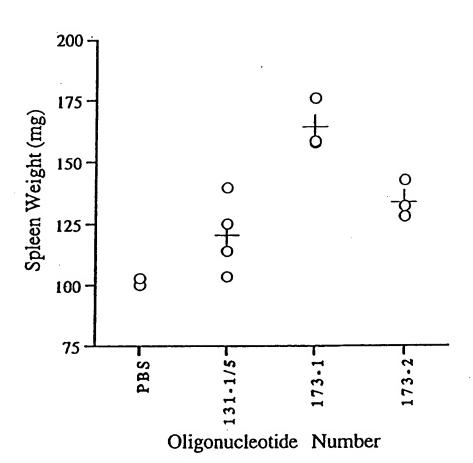
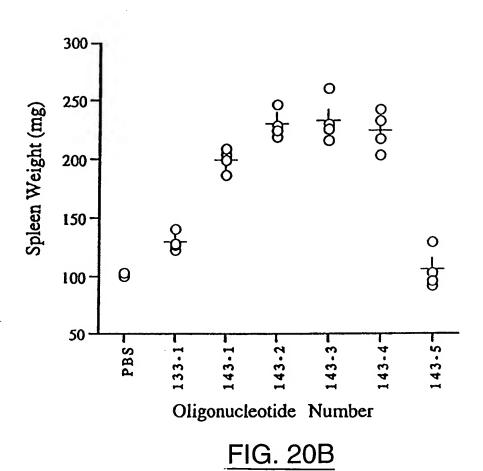


FIG. 19B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

1		
0	Oligo No.	Sequence & Modification
SEQ ID NO.: 8	133-1	s'-cctactagcgttctcatc-3'
SEQ ID NO.: 91	143-1	5'-CCTXXTAGCGTTCTCATC-3'
SEQ ID NO.: 92	143-2	5'-CCTYYTAGCGTTCTCATC-3'
SEQ ID NO.: 93	143-3	5'-CCTZZTAGCGTTCTCATC-3'
SEQ ID NO.: 94	143-4	5'-CCTXXTAGCGTVCTCATC-3'
SEQ ID NO.: 95	143-5	5'-CCTACTAG <u>GC</u> TTCTCATC-3'

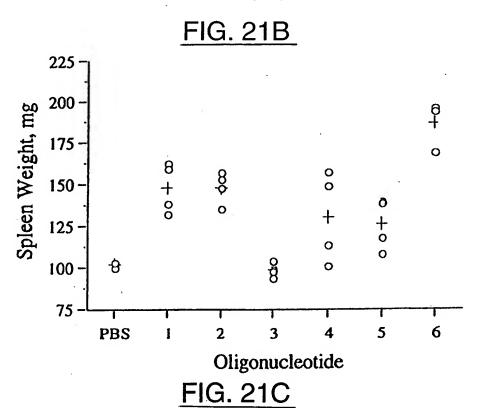
X = 1',2'-Dideoxyribose Y = C3-Linker Z = 3'-OMe V = 2'-OMe FIG. 20A



<u>42/53</u> OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND MODIFICATION OF LINKAGES

OI	igo No.	Sequence & Modification
SEQ ID NO.: 1	1	5'-CTATCTGACGTTCTCTGT-3' (131-1)
SEQ ID NO.: 96	2	5'-CTATCTGACG*TTCTCTGT-3' (E 633L)
SEQ ID NO.: 97	3	5'-CTATCTGAG*CTTCTCTGT-3' (E 636)
SEQ ID NO.: 98	4	5'-TCTCCCAG <u>CG</u> TG <u>CG</u> CCAT-3'
SEQ ID NO.: 99	5	5'-TCTCCCAG <u>CG*</u> TG <u>CG*</u> CCAT-3' (E 603)
SEQ ID NO.: 10	<u>o</u> 6	5'-CTATXTGACG*TTCTCTGT-3' (E 639L)

FIG. 21A



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.

Sequence & Modification

SEQ ID NO.: 101 SEQ ID NO.: 1

SEQ ID NO.: 102

5'-CTATCTGACG*TTCTCTGT-3' (E 682) 5'-CTATCTGACGTTCTCTGT-3' (131-1)

5'-CTATCTGA<u>G*C</u>TTCTCTGT-3' (E 683)

 $G^* = 6$ -thioguanine

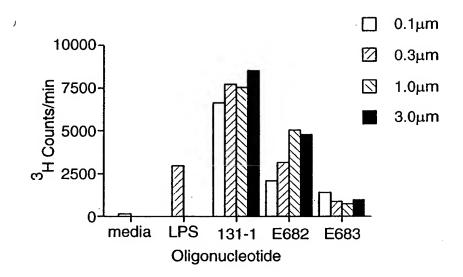


FIG. 22B

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Sequence & Modification

Oligo No.

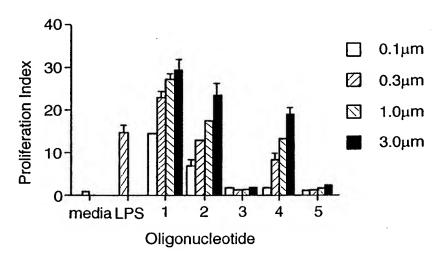


FIG. 23B

NH-CH₂-CH₃

NH2

뜡

C* = 5-hydroxy-cytosine C** = N4-ethyl-cytosine 뚱

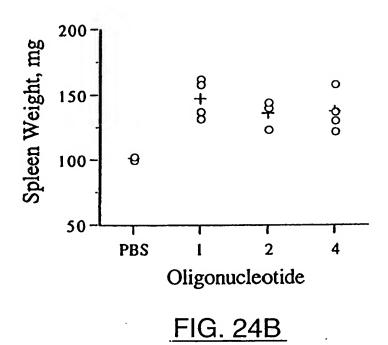
Sequence & Modification Oligo No.

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

S'-CTATCTGACGITCTCTGT-3' SEQ ID NO.: 1

5'-CTATCTGAC*GTTCTCTGT-3' 2 SEQ ID NO.: 2 5'-CTATCTGACC*TTCTCTGT-3' m SEQ ID NO.: 3 5'-CTATCTGAC**GTTCTCTGT-3' SEQ ID NO.: 4 5'-CTATCTGACC**TTCTCTGT-3'

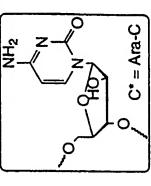
SEQ ID NO.: 5



OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

: 1/2

Sequence & Modification		5'-CTATCTGA <u>CG</u> TTCTCTGT-3'	5'-CTATCTGAC*GITCTCTGT-3'	
Oligo No.		SEQ ID NO.: 1	SEQ ID NO.: 111 2	



5'-CTATCTGACC*TTCTCTGT-3'

SEQ ID NO.: 112

FIG. 25A

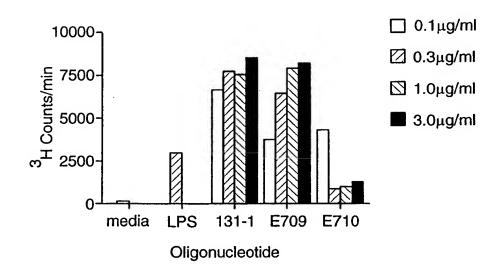


FIG. 25B

X = 1,2-Dideoxyribose

C* = 4-Thiouracil

Sequence & Modification

OLIGODEOXYNUCLEOTIDE PHOSPHOROTHIOATES AND SITE OF MODIFICATION

Oligo No.

5'-CTATCTGACGITCTCTGT-3' (131-1) SEQ ID NO.:

S'-CTATCTGAC*GTTCTCTGT-3' (E 647) 7 SEQ ID NO.:

SEQ ID NO.: 3

5'-CTATXTGAC*GTTCTCTGT-3' (E 653)

